Baltic Forum: Neuroscience, Artificial Intelligence and Complex Systems

Program

All time in the schedule is Kaliningrad time (GMT+2)

Venue - Immanuel Kant Baltic Federal University (str. Universitetskaya, 2, Kaliningrad)

Updated September 15

Day 1
18.09.2023

09:00–10:00	**Registration** **Welcome coffee** (University hall, 1st floor, str. Universitetskaya, 2)	
	Opening Ceremony (Room 326, str. Universitetskaya, 2)	
10:00–10:30	Greetings to the forum participants: **Prof. Alexander Fedorov** – rector of IKBFU **Dr. Maksim Demin** – vice-rector for research of IKBFU	
	Chairman – Prof. Alexander Hramov	
10:30–11:15	***Plenary Lecture*** **Prof. Pavel Balaban** (Institute of Higher Nervous Activity and Neurophysiology of RAS, Russia)	Principles of control in a neural network: from receptors to effectors
11:15–12:00	***Plenary Lecture*** **Prof. Alexander Pisarchik** (Technical University of Madrid, Spain)	Rotating wave dynamics in rings of coupled oscillators: Insights into Working Memory Models
12:00–13:00	**Lunch** (Restaurant of the Kaliningrad Hotel, Leninsky Prospekt, 81)	
	Chairman – Prof. Susanna Gordleeva	
13:00–13:45	***Plenary Lecture*** **Prof. Stefano Boccaletti** (Institute for Complex Systems, Italy)	Why are there six degrees of separation in a social network?
13:45–14:30	***Plenary Lecture*** **Prof. Eugene Postnikov** (Kursk State University, Russia)	Anomalous diffusion in the brain's extracellular space: experiments, models, simulations

14:30–15:00	**Coffee-break** (University hall, 1st floor, str. Universitetskaya, 2)	
Chairman – Prof. Eugene Postnikov		
15:00–15:30	***Invited Lecture*** **Prof. Mikhail Ivanchenko** (Lobachevsky State University, Russia)	Dynamical functional networks of neuro-astrocyte signaling
15:30–16:00	***Invited Lecture*** **Dr. Denis Zakharov** (HSE University, Russia)	Methods for identifying chimeric states in spike and burst neural networks
16:00–16:30	***Invited Lecture*** **Prof. Anatoly Karavaev** (Saratov Branch of Institute of Radioengineering and Electronics of Russian Academy of Sciences, Russia)	Directional couplings between the respiration and parasympathetic control of the heart rate during the cognitive tasks
16:30–17:00	**Coffee-break** (University hall, 1st floor, str. Universitetskaya, 2)	
Chairman – Prof. Anatoly Karavaev		
17:00–17:15	**Evgeniia Alshanskaia**, O. Martynova (HSE University, Russia)	Eye Tracking and Autonomic Nervous System Responses. A Machine Learning Approach to Understanding Cognitive Stress
17:15–17:30	R. Kononov, **Oleg Maslennikov** (Institute of Applied Physics of RAS, Russia)	Performing decision-making tasks through dynamics of recurrent neural networks trained with reinforcement learning
17:30–17:45	**Evgeny Blagovechtchenski**, D. Gnedykh, D. Tsvetova, N. Mktychian, S. Kostormina (St. Petersburg State University, Russia)	Oscillations in the electroencephalogram reflect the learning of abstract and concrete concepts
17:45–18:00	**Maria Koriakina**, O.E. Agranovich, B. Bermúdez-Margaretto, M.A. Ulanov, A.N. Shestakova, E.D. Blagovechtchenski (H.Turner National Medical Research Center for Children's Orthopedics and Trauma Surgery, Russia)	Verbal fluency and semantic association deficits in children with upper limb motor disorders
18:00–18:15	B. Andrievsky, **Iuliia Zaitceva** (Institute for Problems in Mechanical Engineering of RAS, Russia)	Synchronized UAV Group Flight Control under Data Rate Limitations and Actuator Saturation
18:15–18:30	A. Lebedeva, K. Maltseva, N. Barabash, R. Sokolov, A. Rozov, **Tatiana Levanova** (Lobachevsky State University, Russia)	The effect of astrocytes in synaptic transmission and rhythmogenesis in hippocampus
18:30–19:30	**Poster Session I** **Coffee-break** (University courtyard, ground floor, str. Universitetskaya, 2)	

Day 2
19.09.2023

Chairman – Prof. Victor Kazantsev		
09:00–09:45	***Plenary Lecture*** **Prof. Alexander Gorban** (University of Leicester, UK)	Topological grammars for high-dimensional data exploration in bioinformatics and medical informatics
Chairman – Prof. Alexander Pisarchik		
09:45–10:30	***Plenary Lecture*** **Prof. Victor Kazantsev** (Lobachevsky State University / IKBFU, Russia)	Neuromorphic Cybernetics
10:30–11:00	**Coffee-break** (University hall, 1st floor, str. Universitetskaya, 2)	
Chairman – Prof. Victor Kazantsev		
11:00–11:30	***Plenary Lecture*** **Alexander Shenderyuk-Zhidkov** (Senator of the Russian Federation from the Kaliningrad region)	AI and the state: problems and solutions
11:30–12:15	***Plenary Lecture*** **Prof. Pavel Musienko** (St Petersburg University, Russia)	Neuroprosthetics of the spinal cord functions
12:15–12:45	***Invited Lecture*** **Prof. Vadim Ushakov** (Lomonosov Moscow State University, Russia)	Cognitive systems and processes in behavior, physiology and modeling
12:45–13:45	**Lunch** (Restaurant of the Kaliningrad Hotel, Leninsky Prospekt, 81)	
Chairman – Prof. Vadim Ushakov		
13:45–14:15	***Invited Lecture*** **Dr. Olga Martynova** (Institute of Higher Nervous Activity and Neurophysiology of the Russian Academy of Sciences, Russia)	Neurophysiological endophenotypes of obsessive-compulsive disorder
14:15-14:45	***Invited Lecture*** **Prof. Irina Mukhina** (Privolzhsky Research Medical University, Russia)	Neurohybrid model «brain-on-chip» for the study of neural networks

14:45-15:15	***Invited Lecture*** **Dr. Vadim Grubov** (Immanuel Kant Baltic Federal University, Russia)	Concept for epilepsy diagnostics with combined unsupervised outlier detection and supervised data labeling
15:15–15:45	**Coffee-break** (University hall, 1st floor, str. Universitetskaya, 2)	
Chairman – Dr. Denis Zakharov		
15:45–16:15	***Invited Lecture*** **Prof. Vladimir Klinshov** (Institute of Applied Physics of the Russian Academy of Sciences, Russia)	Irregular activity and dynamic memory of spike neural networks
16:15–16:45	***Invited Lecture*** **Prof. Dmitry Smirnov** (Saratov Branch of Institute of Radioengineering and Electronics of Russian Academy of Sciences, Russia)	Information Flows in Continuous-Time Stochastic System as Dynamical Causal Effects
16:45–17:15	***Invited Lecture*** **Prof. Alexey Ossadtchi** (HSE University, Russia)	Interpretable neural networks in neurointerfaces and neuroimaging methods
17:15–18:15	**Poster Session II** **Coffee-break** (University courtyard, ground floor, str. Universitetskaya, 2)	
19:00–22:00	**Gala dinner** (Restaurant of the Kaliningrad Hotel, Leninsky Prospekt, 81)	

Day 3
20.09.2023

09:30–10:00	**Coffee-break** (University hall, 1st floor, str. Universitetskaya, 2)	
Chairman – Prof. Alexey Ossadtchi		
10:00–10:45	***Plenary Lecture*** **Prof. Igor Vozniuk** (St. Petersburg Research Institute of Emergency Medicine named after A.I. I.I. Janelidze, Russia)	Factors limiting the development and implementation of AI in medicine
10:45–11:30	***Plenary Lecture*** **Prof. Alexey Mikhaylov** (Lobachevsky State University, Russia)	Memristor-based neuroelectronics: from complex systems to applications in AI and neurotechnologies
11:30–12:00	**Coffee-break** (University hall, 1st floor, str. Universitetskaya, 2)	
Chairman – Prof. Alexey Mikhaylov		
12:00–12:30	***Invited Lecture*** **Prof. Bernardo Spagnolo** (Università di Palermo, Italy)	Complexity: from Memristors to Axion Dark Matter
12:30-13:00	***Invited Lecture*** **Dr. Max Talanov** (Institute for Artificial Intelligence, Serbia)	Neuropunk revolution: memristive model orchestrated implants infrastructure
13:00-13:30	***Invited Lecture*** **Dr. Sergey Shchanikov** (Lobachevsky State University, Russia)	Modeling and hardware implementation of vector-matrix multiplier based on 32x8 1T1R memristive crossbar array
13:30–14:45	**Lunch** (Restaurant of the Kaliningrad Hotel, Leninsky Prospekt, 81)	
Chairman – Dr. Sergey Shchanikov		
14:45–15:15	***Invited Lecture*** **Dr. Albina Lebedeva** (Lobachevsky State University, Russia)	Development an intelligent method for restoring hippocampal activity after damage
15:15-15:30	I. Jityaev, V. Avilov, A. Avakyan, A. Fedotov, C. Prakash, **Vladimir Smirnov** (Southern federal university, Russia)	Memristive structures based on TiO2 nanodots: simulation, formation and resistive switching

15:30-15:45	**Roman Tominov**, Z. Vakulov, V. Kazantsev, C. Prakash, I. Ugryumov, V. Smirnov (Southern federal university, Russia)	Multilevel resistive switching in thin oxide films for neuromorphic systems of artificial intillegence: simulation & experimental investigation
15:45-16:00	**Sergey Lobov**, Valeri Makarov (Immanuel Kant Baltic Federal University, Russia)	STRDP: A simple rule of rate dependent STDP
16:00-16:15	**Denis Bolshakov**, A. Belov, M. Mishchenko, V. Kazantsev, A. Mikhaylov (Lobachevsky State University, Russia)	Switching dynamics of memristive device under periodic pulse stimulation
16:30–17:30	**Poster Session III** **Coffee-break** (University courtyard, ground floor, str. Universitetskaya, 2)	
17:30–18:00	**Closing Ceremony** (Room 326, str. Universitetskaya, 2)	
18:00–21:00	**Social event** (Gathering at the Kaliningrad Hotel, Leninsky Prospekt, 81)	

Poster Session I

(September 18, 18:30–19:30)

1.	A. Y. Aleksandrov, N. R. Andriyanova (St Petersburg University, Russia)	A problem of nonuniform deployment for a discrete-time multiagent system
2.	S. V. Stasenko, V. B. Kazantsev (Lobachevsky State University, Russia)	Covid olfactory dysfunction model
3.	S. V. Stasenko (Lobachevsky State University, Russia)	Mean-field model of tripartite synapse with infected glial cells
4.	S. V. Stasenko, V. B. Kazantsev (Lobachevsky State University, Russia)	Model of astrocyte regulation of spike time-dependent plasticity
5.	A. Pakhomov, V. Sotskov, E. Mitroshina, M. Vedunova, K. Anokhin, M. Ivanchenko, M. Krivonosov (Lobachevsky State University, Russia)	Evaluation of the activity of neuron-astrocytic networks by the equivalent rewiring probability of the calcium signal propagation dynamic graph
6.	A. Rybalko, A. Fradkov (Institute for Problems in Mechanical Engineering of RAS, Russia)	Identification of Group of FitzHugh-Nagumo Neuron Models Based on the Speed-Gradient and Filtering
7.	V. Kosonogov, I. Ntoumanis, G. Hajiyeva, O. Kuskova, I. Jaaskelainen (HSE University, Russia)	The cost of emotion regulation: A study of electomyographic and cardiac markers
8.	V. Y. Guleva, E. N. Shikov (ITMO University, Russia)	Proportion of Similar Neighbours and Optimal Weight of Neighbourhood Contribution in Learning Dynamics of Networked MARL
9.	I. Potapov, A. Zharinov, M. Khoruzhko, D. Kurganov, V. Kazantsev, S. Lobov (Lobachevsky State University, Russia)	Model of a central pattern generator using a spiking neural network, included different types of neurons
10.	D. Verveyko, A. Verisokin, P. Lukin (Kursk State University, Russia)	Regulation of neurogliovascular unit metabolism and vascular tone by arachidonic acid derivatives: Model approach
11.	V. Stepasyuk, V. Makarov, S. Lobov, V. Kazantsev (Lobachevsky State University, Russia)	The synergy of synaptic scaling and internal homeostatic plasticity
12.	A. Jnadi, R. Khusainov, S. Nedelchev, S. Savin (Innopolis University, Russia)	Explicit Model Predictive Control Design based on Constrained Zonotope Propagation
13.	T. Kustova, A. Vodneva, G. Oreshina, I. Golovanova, M. Zhukova, E. Grigorenko (Sirius University of Science and Technology, Russia)	Interbrain Synchrony during Mentor-Mentee Verbal Interaction. Preliminary Results of EEG-Hyperscanning Study
14.	A. Udoratina, N. Grigorev, A. Savosenkov, D. Ermolaev, V. Maksimenko, S. Gordleeva (Lobachevsky State University, Russia)	Functional TMS mapping during sensorimotor integration task

15.	M. Lipkovich, V. Knyazeva, A. Aleksandrov, N. Shanarova, A. Sagatdinov, A. Fradkov (Institute for Problems in Mechanical Engineering of RAS, Russia)	Evoked potentials detection during self-initiated movements using machine learning approach
16.	C. Zhao, E. Parilina (St Petersburg University, Russia)	Consensus time and winning rate based on simulations in two-layer networks with hypocrisy
17.	S. Ibrahim, A. Jnadi, R.Khusainov, S. Kazmi (Innopolis University, Russia)	Reward Planning for Underactuated Robotic Systems: A Study on Pendubot with Parameters Uncertainty
18.	N. Semenova (Saratov State University, Russia)	Controlling the number of spikes in FitzHugh–Nagumo system subject to periodic forcing
19.	V. Moskvitin, N. Semenova (Saratov State University, Russia)	How noise impacts on trained echo-state neural network
20.	L. Parepko, D. Shulepin, A. Nasybullin (Innopolis University, Russia)	Single-Entity Spiking Neuron Models: Survey
21.	E. Kalinina, M. Vedunova, E. Mitroshina, A. Kalyakulina (Lobachevsky State University, Russia)	Astrocyte Activation Modulates Neural Network Activity of Primary Hippocampal Cell Cultures in vitro
22.	M. Sergeeva, I. Shirolapov, A. Alekseeva, E. Korovina, A. Zakharov, N. Romanchuk, Yu. Komarova, V.Pyatin, O. Pavlova (Samara State Medical University, Russia)	Perception of virtual reality stimulus of personalized and indifferent content using the oddball paradigm
23.	A. Chernov, O. Granichin, I. Len (Institute for Problems in Mechanical Engineering of RAS, Russia)	Simultaneous Perturbation Stochastic Approximation-Based Consensus Algorithm for Decentralized Cooperative Online Estimation
24.	N. Romanchuk, M. Sergeeva, I. Shirolapov, A. Zakharov, Y. Komarova, V. Pyatin (Samara State Medical University, Russia)	EEG Correlates Of The Human Brain Biological Age
25.	O. Shagniev, A. Fradkov (Institute for Problems in Mechanical Engineering of RAS, Russia)	Neural network-based synchronization control of the two-rotor vibration setup
26.	M. Sergeeva, I. Shirolapov, E. Korovina, A. Zakharov, N. Romanchuk, V. Bannov, V. Pyatin (Samara State Medical University, Russia)	EEG monitoring under the exposure of light in the spectrum of maximum activation of intrinsically photosensitive retinal ganglion cells
27.	I. Shirolapov, V. Pyatin, A. Zakharov, M. Sergeeva, N. Romanchuk, Yu. Komarova (Samara State Medical University, Russia)	Neuromuscular rehabilitation does not cause immunosupression in elderly patients without neurodegenerative diseases
28.	D. Radushev, O. Dogonasheva, B. Gutkin, D. Zakharov (HSE University, Russia)	Chimera states in a ring of non-locally connected interneurons

29.	A. Kuc, V. Grubov, A. Badarin, V. Maksimenko (Immanuel Kant Baltic Federal University, Russia)	Neurophysiological mechanisms of visual sensory information processing in stimuli with high and low ambiguity
30.	A. Kuc, V. Maksimenko (Immanuel Kant Baltic Federal University, Russia)	The influence of perception bias on behavioral characteristics during the interpretation of bistable sensory information
31.	V. Aksiotis, A. Voskoboynikov, A. Ossadtchi, A. Tumyalis (HSE University, Russia)	Optimal decision-making duration

Poster Session II

(September 19, 17:15–18:15)

1.	A. Semenov, A. Fradkov (Institute for Problems in Mechanical Engineering of RAS, Russia)	Parameters identification of the multispecies Lotka-Volterra model using discrete algorithm
2.	A. Kirsanov, O. Shcherbakova, Y. Shtyrov, E. Blagovechtchenski (St Petersburg University, Russia)	Markers of Acquisition New Word Forms Semantics In Explicit and Implicit Contexts With Articulatory Condition: Sources Analysis
3.	A. Kovalchukov (Institute for Problems in Mechanical Engineering of RAS, Russia)	Approximate Hindmarsh-Rose model identification: application to EEG data
4.	A. Ragimova, A.N. Vorobiova, M. Imanaeva, M. Feurra (HSE University, Russia)	Exploring the Association Excitatory and Inhibitory Indices and the Mirror Neuron System by Transcranial Magnetic Stimulation of the Primary Motor Cortex
5.	D. Bredikhin, K. Bartseva, A. Kuznetsova, A. Kirsanov, M. Koriakina, S. Ponomareva, E. Pomelova, A. Popyvanova, E. Blagovechtchenski (HSE University, Russia)	C.R.A.B.: The Paradigm to Study Motor-Related Cortical Potentials in Children
6.	M. Ivanova, K. Germanova, D. Petelin, A. Ragimova, M. Herrojo Ruiz (HSE University, Russia)	Decision making, belief updating and motor performance in bipolar disorder: an MEG study
7.	E.R. Bagautdinova, N.A. Shchegoleva, N.V. Stankevich (HSE University, Russia)	Oscillatory activity induced by noise in Hodgkin-Huxley-type of model with stable steady state
8.	A. Hramkov, E. Borovkova, E. Dubinkina, V. Ponomarenko, S. Plekhanova, M. Prokhorov (Saratov State University, Russia)	Change in the directional coupling between the heart beat and respiration during the Stroop test and mental arithmetic test
9.	V. Timokhov, O.Zinchenko, V. Klucharev (HSE University, Russia)	An Investigation of Neural Dynamics of the Prefrontal Cortex in Decision-Making Under Uncertainty
10.	I. Ushakov, M. Mishchenko, V. Matrosov (Lobachevsky State University, Russia)	Development of a self-learning mobile robot control system based on neural networks with long-term plasticity
11.	A.V. Sychev, O.V. Lagunova, I.L. Mallphanov, A.I. Lavrova (Kursk State University, Russia)	A new method for studying the structure of chemo-mechanical gels used as smart materials
12.	Y. Kareeva, A. Sedakov (St Petersburg University, Russia)	Competitive Influence in a Social Network with Stubborn Agents: A Case of Constant Control
13.	A. Ershova, A. Grishchenko, E. Suleymanova, L. Vinogradova, I. Sysoev (Saratov Branch of Institute of Radioengineering and Electronics of Russian Academy of Sciences, Russia)	Analysis of connectivity estimates in the pentylenetetrazol rat model of absentee epilepsy using estimating mutual information and phase coherence index

14.	D. Ezhov, V. Ponomarenko, M. Prokhorov, A. Kurbako (Saratov State University, Russia)	Using FPGA for Developing Hybrid System of Coupled Neuron-Like Radiophysical Oscillators
15.	S. Makovkin, I. Kastalskiy, S. Gordleeva (Lobachevsky State University, Russia)	Phase-locked states in a spiking neural network model with a context-dependent connectivity
16.	L. Takaishvili, V. Ponomarenko, I. Sysoev (Saratov State University, Russia)	Development of a new FitzHugh–Nagumo type simplified electonic neuron
17.	A. Bukh, E. Rybalova, I. Shepelev, T. Vadivasova (Saratov State University, Russia)	Influence of dual frequency auditory signals on FitzHugh--Nagumo neuron network
18.	M. Khoymov, A. Tynterova, N. Shusharina, A. Rozhdestvensky (Immanuel Kant Baltic Federal University, Russia)	Development of a statistical methodology for assessing the functional outcome and effectiveness of restorative treatment of patients with cognitive impairment in the acute period of ischemic stroke
19.	A. Tynterova, E. Barantsevich, M. Khoymov, N. Shusharina, A. Rozhdestvensky (Immanuel Kant Baltic Federal University, Russia)	Personalized approach in neurocognitive rehabilitation of patients in the acute period of ischemic stroke using virtual reality technologies
20.	A. Tynterova, E. Barantsevich, M. Khoymov, N. Shusharina, A. Rozhdestvensky (Immanuel Kant Baltic Federal University, Russia)	Predicting of functional results and rehabilitation efficiency of patients with cognitive impairments in the Ischemic Stroke Acute Period based on IQCODE parameters
21.	A. Kovalev, A. Zaitsev (Immanuel Kant Baltic Federal University, Russia)	Optimal physical activity index based on digital heart rate data
22.	Yu.M. Ishbulatov, A.V. Kurbako, A.M. Vahlaeva, V.I. Gridnev, M.D. Prokhorov, A.S. Karavaev (Saratov State University, Russia)	Mathematical model of the photoplethysmogram and electrocardiogram signals with a priory known pattern of the phase synchronization
23.	A. Petukhov, A. Karandeev, S. Varykhanov (Keldysh Institute of Applied Mathematics of RAS, Russia)	Intelligent system for text-based diagnostics of deviant states of individual
24.	D. Vlasenko, A. Zaikin, D. Zakharov (HSE University, Russia)	Classification of brain activity using Synolitic networks
25.	A.V. Kurbako, E.I. Borovkova, A.N. Hramkov, A.S. Karavaev, V.I. Ponomarenko, M.D. Prokhorov Saratov Branch of Institute of Radioengineering and Electronics of Russian Academy of Sciences, Russia)	Development of Hardware-Software Complex for Detecting a Stress State in Real Time from EEG Signals
26.	E. Marasanova, M. Vedunova, E.Mitroshina (Lobachevsky State University, Russia)	Effect of Activation of the 5-HT 4 Receptor System on the Calcium Activity of Neuron-Glial Networks in vitro
27.	A.S. Vanina, A.V. Sychev, I.S. Proskurkin, E.B. Postnikov (Kursk State University, Russia)	Revealing types of transport regimes for organometallic markers spreading in a collagen-based brain parenchyma's phantom

28.	A. Varekhina, M. Krivonosov, M. Vedunova, E. Mitroshina (Lobachevsky State University, Russia)	A Novel Approach to Events Recognition in Calcium Imaging
29.	G. Guyo (Saratov State University, Russia)	Analysis of Complex Cooperative Dynamics Using Joint Singularity Spectra
30.	V. S. Bobakov, E. A. Koryukin, A. S. Butorova, A. P. Sergeev (Ural Federal University, Russia)	Classification of graph topologies by machine learning methods
31.	A. S. Butorova, E. A. Koryukin, N. I. Nurullina, V. S. Bobakov, A. P. Sergeev (Ural Federal University, Russia)	Mono vs Stereo Modes of Visual-Auditory Sensory Substitution in Spatial Localization Task
32.	S. Nazarikov, S. Kurkin (Immanuel Kant Baltic Federal University, Russia)	Two-stage model for epileptic seizures detection on EEG recordings
33.	A. Rusinova, M. Volodina, A. Ossadtchi (HSE University, Russia)	Improvement in Psychological Well-being and Changes in Brain and Autonomic Nervous System Activity in novices after Taoist Meditation Training

Poster Session III

(September 20, 16:30–17:30)

1.	I. Kipelkin, S. Gerasimova, N. Gromov, T. Levanova (Lobachevsky State University, Russia)	Memristive Complex Functions for Design of Deep Neural Network
2.	I. Kipelkin, V. Lukoyanov, A. Mikhaylov, V. Kazantsev (Lobachevsky State University, Russia)	Simulation of integrated memristive devices and their market prospects
3.	M. Koryazhkina, E. Okulich, I. Antonov, A. Mikhaylov, D. Filatov, O. Gorshkov, D. Valenti, B. Spagnolo (Lobachevsky State University, Russia)	Pulse duration effect on synaptic plasticity of ZrO2(Y)-based memristive device
4.	M. Mishchenko, M. Matveeva, A. Fedulina, S. Gerasimova, D. Bolshakov, A. Beltyukova, A. Mikhaylov, V. Kazantsev, A. Lebedeva (Lobachevsky State University, Russia)	Restoration of the hippocampal CA1 area activity by close-loop adaptive stimulation
5.	E. Navrotskaya, A. Kurbako, V. Ponomarenko, M. Prokhorov (Saratov Branch of the Institute of Radio Eineering and Electronics of RAS, Russia)	Synchronization in a Network of Neuronlike Oscillators with Memristive Couplings
6.	M. Brovkova, V. Martynov, L. Kochkurov (Mechanical Engineering Research Institute of RAS, Russia)	Tool condition monitoring using machine learning methods
7.	B. Brzhozovskii, V. Martynov. E. Zinina, S. Permyakov (Mechanical Engineering Research Institute of RAS, Russia)	Assessment of possibilities to improve the efficiency of low-temperature plasma modification of the surface layer of metal products
8.	B. Brzhozovskii, V. Martynov. E. Zinina, S. Gestrin (Mechanical Engineering Research Institute of RAS, Russia)	Study of low-temperature plasma gas discharge
9.	Y. Tsybina, I.Kastalskiy, A. Andreev, N. Frolov, S. Gordleeva, A. Hramov (Lobachevsky State University, Russia)	Epileptiform activity in a neuron-astrocyte network model
10.	Sergey Stasenko, Tatiana Levanova (Lobachevsky State University, Russia)	Mean-field model of glia-mediated appearance of brain rhythms in normal and pathological conditions
11.	N. Brusinskii, A. Badarin, S. Kurkin (Immanuel Kant Baltic Federal University, Russia)	Attention biomarker based on wave rhythm stability
12.	T. Bukina, M. Khramova, S. Kurkin, A. Hramov (Immanuel Kant Baltic Federal University, Russia)	Possibilities and features of the elementary cognitive and educational functions development
13.	M. Khoymov, V. Grubov, S. Kurkin, N. Utyashev, A. Hramov (Immanuel Kant Baltic Federal University, Russia)	Epileptic EEG Labeling with Anomaly Detection Machine Learning Algorithms
14.	E. Borovkova, A. Karavaev, A. Hramkov, E. Dubinkina, B. Bezruchko, M. Prokhorov	Interaction of the processes of autonomous control of the heart rate during the cognitive tasks

	(Saratov State University, Russia)	
15.	V. Skazkina, K. Popov, N. Krasikova, A. Kuligin, A. Kiselev, A. Karavaev (Saratov State University, Russia)	Analysis of phase synchronization of circuits of autonomic regulation of blood circulation in patients with Covid-19 and other comorbidities
16.	V. Skazkina, K. Popov, A. Karavaev (Saratov State University, Russia)	Analysis of coupling between low-frequency loops in cardiovascular autonomic system in patients with Covid-19 using cross-recurrent plot
17.	V. Khorev, S. Kurkin, R. Paunova, D. Stoyanov, A. Hramov (Immanuel Kant Baltic Federal University, Russia)	Differences in the resting-state functional brain networks of patients with major depressive disorder and bipolar disorder
18.	V. Khorev, S. Kurkin, R. Paunova, D. Stoyanov, A. Hramov (Immanuel Kant Baltic Federal University, Russia)	Features of the resting-state functional network in patients with major depressive disorder: mutual information analysis in fMRI data
19.	O.V. Piljugin, A.A. Badarin, Y.D. Belousova (Immanuel Kant Baltic Federal University, Russia)	Working Memory Test Efficacy Assessment in Patients with Asthenic Syndrome
20.	A. Berkmush-Antipova, N. Syrov, L. Yakovlev, A. Demchinsky, A. Miroshnikov, N. Shusharina, A. Kaplan	Influence of TMS-Coil Position on the Lateralization of Phosphenes Elicited by Magnetic Stimulation of the Visual Cortex
21.	A. Grigoreva, A. Kondratenko, A. Gorin, A.N. Shestakova (HSE University, Russia)	Context-dependent P2 plasticity dynamics in the monetary incentive delay task
22.		
23.	A. Miroshnikov, L. Yakovlev, N, Syrov, A. Berkmush-Antipova, A. Kaplan (Immanuel Kant Baltic Federal University, Russia)	Altered States of Consciousness are not homogenous during meditation: an fNIRS study
24.	A. Dolgov, S. Kurkin (Immanuel Kant Baltic Federal University, Russia)	Higher-order interactions in functional brain networks in major depressive disorder
25.	N. Smirnov, V. Grubov, N. Utyashev, S. Kurkin (Immanuel Kant Baltic Federal University, Russia)	Exploring the Potential of Photic Stimulation in EEG-Based Diagnosis of Epilepsy
26.	D. Lubchenko, O. Isaeva (Saratov Branch of Kotenikov Institute of Radio-Engineering and Electronics RAS, Russia)	On synchronization and communication of the robust system
27.	E.S. Dubinkina, E.I. Borovkova, A.N. Hramkov, Y.M. Ishbulatov, A.V. Kurbako, A.S. Karavaev (Saratov Branch of Institute of Radioengineering and Electronics of Russian Academy of Sciences, Russia)	Comparison of the indices characterizing skin conductivity properties in stress diagnosis
28.	N. Kulagin, A. Andreev, A. Hramov (Immanuel Kant Baltic Federal University, Russia)	Using reservoir computing for dynamics forecast of noise-perturbed FitzHugh-Nagumo system
29.	A. Badarin (Innopolis University / Immanuel Kant Baltic Federal University, Russia)	Hemodynamic response during a short-term memory task
30.	A. Badarin, A. Andreev	Reservoir computing allows recovering hidden network dynamics

	(Innopolis University / Saint Petersburg State University, Russia)	
31.	V. Semenov, S. Jalan, A. Zakharova (Saratov State University, Russia)	Multiplexing-based control of noise-induced collective dynamics in multilayer networks of bistable oscillators: stochastic resonance and wavefront propagation
32.	A. Andreev (Immanuel Kant Baltic Federal University, Russia)	Classification of MDD patients with using network measures